

WHAT IS CLAIMED IS:

1. A method for simulating interdependent infrastructures, comprising the steps of:
 - selecting a subset of an interdependent infrastructure system;
 - equivalencing the subset;
 - creating a plurality of agents to interact with the subset; and
 - simulating multi-scale agent interactions.
2. The method of claim 1, wherein the subset is being selected to represent a geographic region.
3. The method of claim 1, further comprising the steps of:
 - selecting components for two way analysis, and wherein the simulation occurs across concurrent time.
4. The method of claim 1, further comprising the steps of:
 - selecting a plurality of infrastructures to simulate; and
 - connecting the infrastructures, including the steps of
 - screening candidate interconnections; and
 - assigning candidates a likelihood of connection.
5. The method of claim 1, wherein the equivalencing step includes the steps of:
 - identifying connections extending outside of the subset; and
 - calculating flow limit for each connection extending outside the subset.
6. The method of claim 1, wherein the creating agents step includes the steps of:
 - creating agents from templates and data for a infrastructure; and
 - creating agents at equivalenced connections.
7. The method of claim 1, wherein the simulating step includes the steps of:
 - advancing agent conditions through time;
 - re-equivalencing the infrastructure; and

continuing the simulation until a steady state is achieved.

8. An apparatus for simulating interdependent infrastructures, comprising:
 - a selector for selecting a subset of an interdependent infrastructure system;
 - an equivalencer for equivalencing a subset;
 - a plurality of agents for modeling the subset; and
 - a simulator for simulating multi-scale agent interactions within the subset.
9. The apparatus of claim 8, wherein the selector comprises a candidate screener for determining the likelihood of interconnections.
10. The apparatus of claim 8, wherein the equivalencer comprises a flow limit calculator for equivalencing connections extending outside a subset.
11. The apparatus of claim 8, wherein the agents comprise:
 - a data gatherer for creating agents; and
 - templates for creating agents.
12. The apparatus of claim 8, wherein the simulator comprises a time advancer for advancing agent conditions through time.
13. A system for simulating interdependent infrastructures, comprising:
 - means for selecting infrastructures from an interdependent infrastructure system;
 - means for equivalencing the selected infrastructures;
 - means for creating agents for the intended use interacting with the infrastructures; and
 - means for simulation for the intended use of analyzing the infrastructures.
14. The system of claim 13, wherein the means for equivalencing comprises means for calculating a flow limit.

15. The system of claim 13, wherein the means for simulation comprises:
- means for re-equivalencing;
 - means for advancing conditions through time steps; and
 - means for determining steady state.